

## DETAILED ACTION

### *Current Status*

1. This action is responsive to Applicants' amendment of 30 June 2009 and 25 November 2009.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1-4 and 7-11 are pending in the application.
4. The 112 rejection is withdrawn following Applicants amendment.
5. The rejection of claims 1-4 and 7-11 under 35 U.S.C. 103 as being unpatentable over Dinh-Nguyen et al., {GB 1,103,607} or Junk et al. (1), {Preparative supercritical deuterium exchange in arenes and heteroarenes, Tetrahedron letters, 37, 201996, 3445-3448} in view of Junk et al.(2), {US 5,830,763} or Bergman et al., {US 6,794,522} is maintained for the reasons set forth in the previous Office Action of 03/30/2009.

Applicants' argument and amendments filed 30 June 2009 and 25 November 2009 have been fully considered but they are not persuasive because Applicants claimed method for deuteration of an aromatic ring comprising: reacting the aromatic ring under a neutral condition with a deuterated solvent other than deuterium peroxide ( $D_2O_2$ ) in the presence of one activated catalyst selected from a platinum catalyst, a rhodium catalyst, a ruthenium catalyst, a nickel catalyst and a cobalt catalyst is obvious in view of the prior art references cited. Applicants argue that the prior arts cited discloses a partially or full deuteration method of organic compounds in the presence of an alkaline deuteroxide, a platinum catalyst, and deuterium peroxide and fails to

disclose a deuteration method of aromatic ring as claim 1 requires. Applicants further argue that Bergman merely discloses that an H/D exchange occurs under moderate conditions, that is neutral conditions and the aromatic ring compound, which is deuterated in Bergman, is benzoic acid. Applicants contend that Bergman fails to disclose a method of reacting the aromatic ring compounds listed in claim 1 under a neutral condition as claim 1 requires.

Applicants' argument is not convincing because the prior art references cited teach all the claimed elements (organic compounds, aromatic compounds, the catalysts, deuterium oxide, deuterium gas, neutral condition, etc.) one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The Examiner notes that simply reversing the order of steps in a multi-step process is not a patentable modification **absent** unexpected or unobvious results. Ex parte Rubin, 128 U.S.P.Q. 440 (P.O.B.A 1959).

Also, the variation of a reaction conditions in a chemical reaction is a well-known chemical technique to optimize the process efficiency of the system and does not constitute a patentable distinction **absent** a showing of criticality. In re Aller, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955).

Dinh-Nguyen discloses the use of deuterium gas contrary to Applicants argument. See example 1, page 2 of GB 1,103,607. Therefore, one of ordinary skill in the art would have been motivated to correlate and modify the teachings of Dinh-

Nguyen et al., {GB 1,103,607} or Junk et al. (1), {Preparative supercritical deuterium exchange in arenes and heteroarenes, Tetrahedron letters, 37, 201996, 3445-3448} in view of Junk et al.(2), {US 5,830,763} or Bergman et al., {US 6,794,522} in order to prepare deuterated aromatic ring as claimed by Applicants, which are useful industrial chemicals.

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/  
Examiner, Art Unit 1621

/Sikarl A. Witherspoon/  
Primary Examiner, Art Unit 1621

(for)

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